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PATENT EXAMINER 2815
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Date: 1/9/02

Cover Sheet + 7 Pages

Message: Navy Case No. 79,812

..... U.S. Patent Application Serial No. 09/614,682
..... Enclosed: Fee Transmitted; and
..... 2. Amendment
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PTO/5817 (10-01)

Approved for use through 10/31/2002. OMB 0651-0032

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FEE TRANSMITTAL for FY 2002

Patent fees are subject to annual revision.

TOTAL AMOUNT OF PAYMENT

(\$ 920

Complete if Known

Application Number 09/614,682
 Filing Date July 12, 2000
 First Named Inventor Summers et al.
 Examiner Name Nguyen, J.
 Group Art Unit 2815
 Attorney Docket No. 79,812

METHOD OF PAYMENT		FEE CALCULATION (continued)																																																																																																																													
1. <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge indicated fees and credit any overpayments to: Deposit Account Number: 50-0281 Deposit Account Name: Naval Research Laboratory <input checked="" type="checkbox"/> Charge Any Additional Fee Required Under 37 CFR 1.16 and 1.17 <input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27		3. ADDITIONAL FEES <table border="1"> <thead> <tr> <th>Large Entity Fee Code (S)</th> <th>Small Entity Fee Code (S)</th> <th>Fee Description</th> <th>Fee Paid</th> </tr> </thead> <tbody> <tr><td>105 130 205 65</td><td></td><td>Surcharge - late filing fee or oath</td><td></td></tr> <tr><td>127 50 227 25</td><td></td><td>Surcharge - late provisional filing fee or cover sheet</td><td></td></tr> <tr><td>139 120 139 130</td><td></td><td>Non-English specification</td><td></td></tr> <tr><td>147 2,520 147 2,520</td><td></td><td>For filing a request for ex parte reexamination</td><td></td></tr> <tr><td>112 920 112 920</td><td></td><td>Requesting publication of SIR prior to Examiner action</td><td></td></tr> <tr><td>113 1,840 113 1,840</td><td></td><td>Requesting publication of SIR after Examiner action</td><td></td></tr> <tr><td>115 110 215 55</td><td></td><td>Extension for reply within first month</td><td></td></tr> <tr><td>116 400 216 200</td><td></td><td>Extension for reply within second month</td><td></td></tr> <tr><td>117 920 217 460</td><td></td><td>Extension for reply within third month</td><td>920</td></tr> <tr><td>118 1,440 218 720</td><td></td><td>Extension for reply within fourth month</td><td></td></tr> <tr><td>128 1,960 228 980</td><td></td><td>Extension for reply within fifth month</td><td></td></tr> <tr><td>119 320 219 160</td><td></td><td>Notice of Appeal</td><td></td></tr> <tr><td>120 320 220 160</td><td></td><td>Filing a brief in support of an appeal</td><td></td></tr> <tr><td>121 260 221 140</td><td></td><td>Request for oral hearing</td><td></td></tr> <tr><td>138 1,510 138 1,510</td><td></td><td>Petition to institute a public use proceeding</td><td></td></tr> <tr><td>140 110 240 55</td><td></td><td>Petition to revive - unavoidable</td><td></td></tr> <tr><td>141 1,260 241 640</td><td></td><td>Petition to revive - unintentional</td><td></td></tr> <tr><td>142 1,280 242 640</td><td></td><td>Utility issue fee (or reissue)</td><td></td></tr> <tr><td>143 460 243 230</td><td></td><td>Design issue fee</td><td></td></tr> <tr><td>144 620 244 310</td><td></td><td>Plant issue fee</td><td></td></tr> <tr><td>122 130 122 130</td><td></td><td>Petitions to the Commissioner</td><td></td></tr> <tr><td>123 50 123 50</td><td></td><td>Processing fee under 37 CFR 1.17(c)</td><td></td></tr> <tr><td>126 150 126 180</td><td></td><td>Submission of Information Disclosure Stmt</td><td></td></tr> <tr><td>581 40 581 40</td><td></td><td>Recording each patent assignment per property (times number of properties)</td><td></td></tr> <tr><td>146 740 246 370</td><td></td><td>Filing a submission after final rejection (37 CFR § 1.129(a))</td><td></td></tr> <tr><td>149 740 249 370</td><td></td><td>For each additional invention to be examined (37 CFR § 1.129(b))</td><td></td></tr> <tr><td>175 740 275 370</td><td></td><td>Request for Continued Examination (RCE)</td><td></td></tr> <tr><td>169 900 169 900</td><td></td><td>Request for expedited examination of a design application</td><td></td></tr> <tr><td colspan="2">Other fee (specify) _____</td><td></td><td></td></tr> <tr><td colspan="2">SUBTOTAL (1) (\$ 0</td><td colspan="2">SUBTOTAL (3) (\$ 920</td></tr> </tbody> </table>		Large Entity Fee Code (S)	Small Entity Fee Code (S)	Fee Description	Fee Paid	105 130 205 65		Surcharge - late filing fee or oath		127 50 227 25		Surcharge - late provisional filing fee or cover sheet		139 120 139 130		Non-English specification		147 2,520 147 2,520		For filing a request for ex parte reexamination		112 920 112 920		Requesting publication of SIR prior to Examiner action		113 1,840 113 1,840		Requesting publication of SIR after Examiner action		115 110 215 55		Extension for reply within first month		116 400 216 200		Extension for reply within second month		117 920 217 460		Extension for reply within third month	920	118 1,440 218 720		Extension for reply within fourth month		128 1,960 228 980		Extension for reply within fifth month		119 320 219 160		Notice of Appeal		120 320 220 160		Filing a brief in support of an appeal		121 260 221 140		Request for oral hearing		138 1,510 138 1,510		Petition to institute a public use proceeding		140 110 240 55		Petition to revive - unavoidable		141 1,260 241 640		Petition to revive - unintentional		142 1,280 242 640		Utility issue fee (or reissue)		143 460 243 230		Design issue fee		144 620 244 310		Plant issue fee		122 130 122 130		Petitions to the Commissioner		123 50 123 50		Processing fee under 37 CFR 1.17(c)		126 150 126 180		Submission of Information Disclosure Stmt		581 40 581 40		Recording each patent assignment per property (times number of properties)		146 740 246 370		Filing a submission after final rejection (37 CFR § 1.129(a))		149 740 249 370		For each additional invention to be examined (37 CFR § 1.129(b))		175 740 275 370		Request for Continued Examination (RCE)		169 900 169 900		Request for expedited examination of a design application		Other fee (specify) _____				SUBTOTAL (1) (\$ 0		SUBTOTAL (3) (\$ 920	
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*or: number previously paid, if greater. For Reissues, see above

*Reduced by Basic Filing Fee Paid

SUBMITTED BY		Complete (if applicable)	
Name (Print/Type)	Jane Barrow Marciszyn	Registration No. (Attorney/Agent)	34,217
Signature	<i>Jane Barrow Marciszyn</i>	Telephone	202-404-1551
		Date	1/9/02

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#6/AC3
F.BELL
1-15-02

PATENT APPLICATION
Navy Case No. 79,812

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Summers et al.

Serial No.: 09/614,682

Filed: July 12, 2000

For: CMOS DEVICES HARDENED AGAINST TOTAL DOSE RADIATION

Examiner: Nguyen, J.

Group Art Unit: 2815

January 9, 2002

Honorable Assistant Commissioner of Patents
Washington, D.C. 20231

AMENDMENT

Dear Sir:

In response to the Office Action mailed on July 10, 2001, please amend the above-identified application as follows:

In the claims:

1. (Amended) A bulk CMOS or NMOS device having two or more FETs and having a field oxide region separating each FET which are disposed on a substrate, the device being resistant to total dose radiation failures, the device further comprising a negative voltage source, for applying a steady negative back bias to said substrate to increase the threshold voltage in a NMOS field oxide region to mitigate leakage currents in said device, thereby mitigating total dose radiation effects, and wherein said field oxide region separates each FET.

2. (Amended) The device of claim 1, wherein said back bias is less than the breakdown voltage of drain-substrate and source-substrate junctions.

7. (Amended) A method for operating a bulk CMOS or NMOS device to resist total dose radiation effects, said CMOS or NMOS device having two or more FETs with a field oxide region separating each FET disposed on a substrate, comprising the steps of:

selecting a maximum ionizing radiation dose for operation of said bulk CMOS or NMOS device; and

determining and applying a negative back bias to said substrate of NMOS

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